FIG. 1

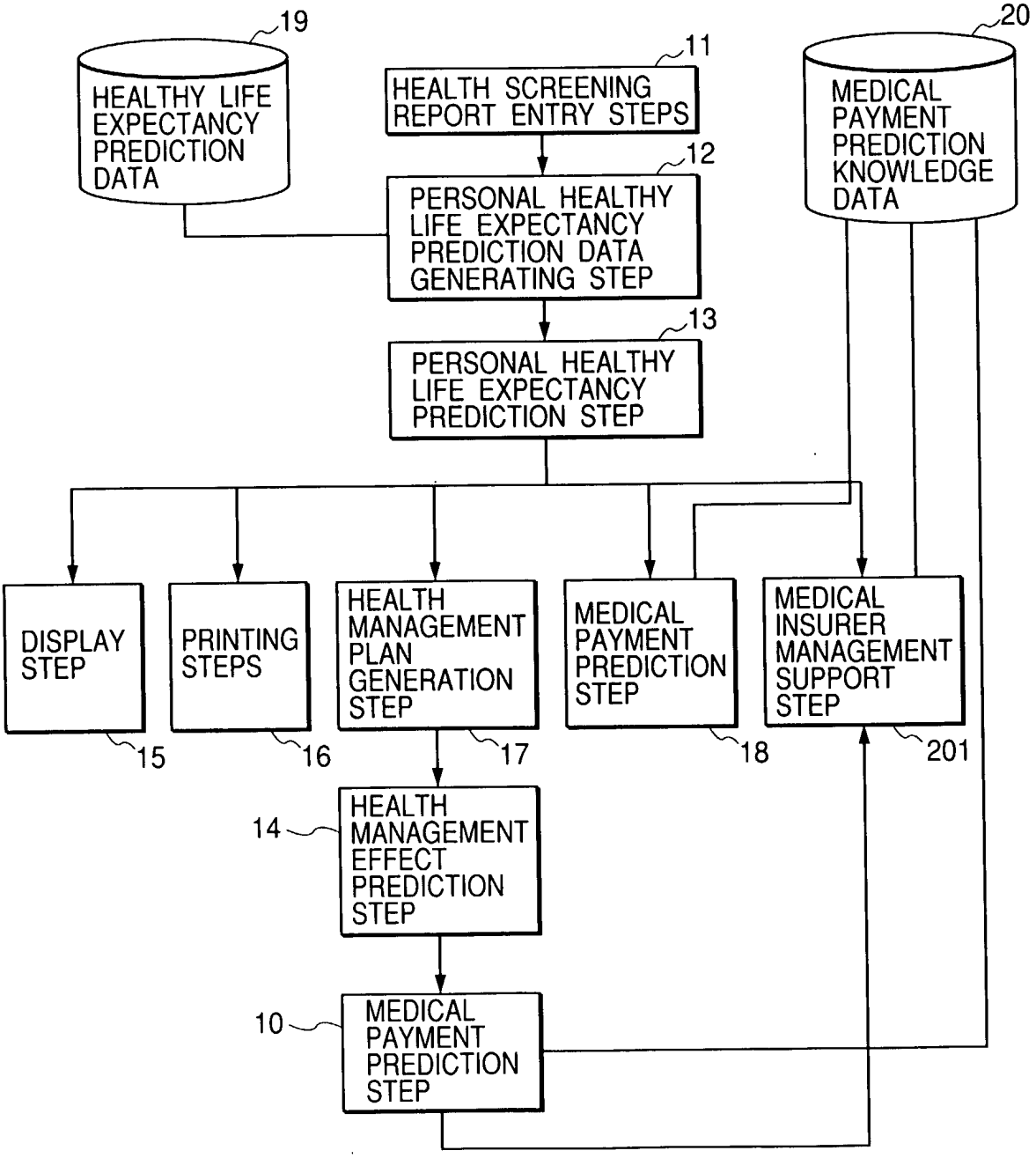

19
HEALTHY LIFE EXPECTANCY PREDICTION DATA
11
HEALTH SCREENING REPORT ENTRY STEPS
12
PERSONAL HEALTHY LIFE EXPECTANCY PREDICTION DATA GENERATING STEP
13
PERSONAL HEALTHY LIFE EXPECTANCY PREDICTION STEP
20
MEDICAL PAYMENT PREDICTION KNOWLEDGE DATA
DISPLAY STEP
15
PRINTING STEPS
16
HEALTH MANAGEMENT PLAN GENERATION STEP
17
MEDICAL PAYMENT PREDICTION STEP
18
MEDICAL INSURER MANAGEMENT SUPPORT STEP
201
14
HEALTH MANAGEMENT EFFECT PREDICTION STEP
10
MEDICAL PAYMENT PREDICTION STEP

FIG. 2

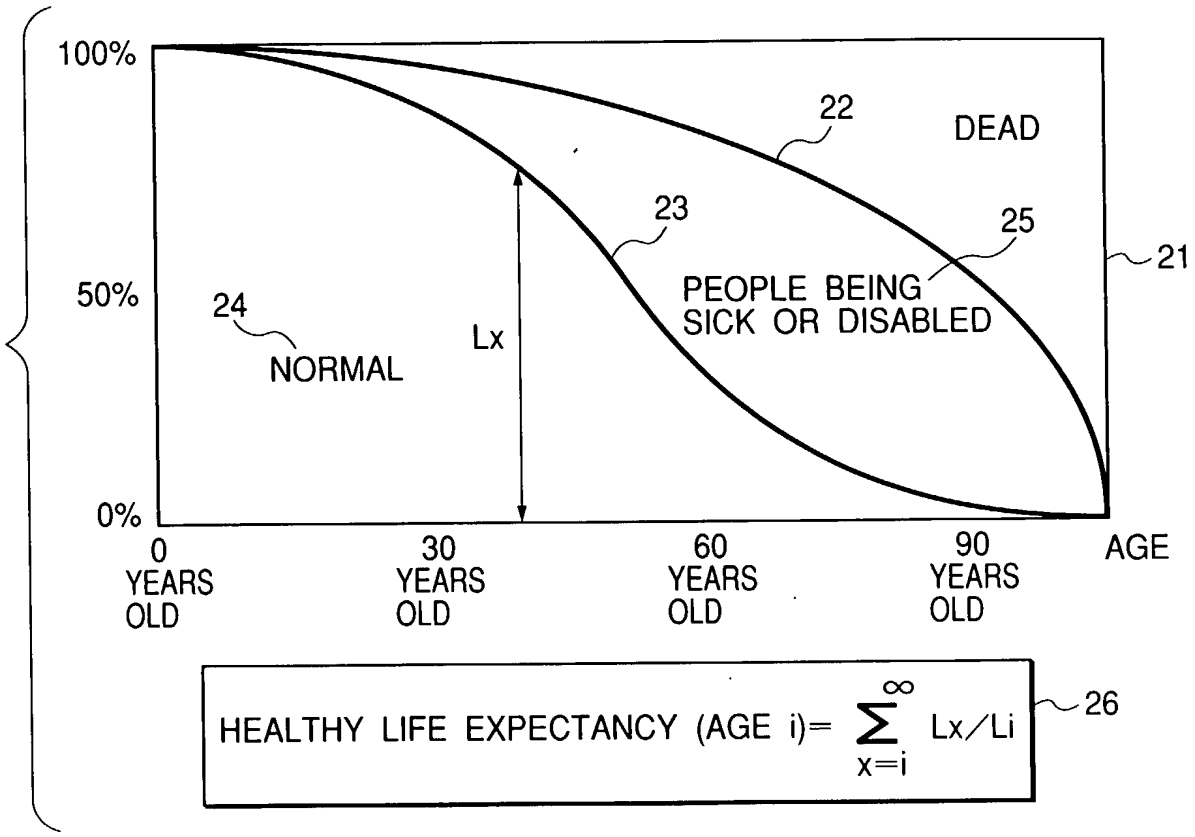
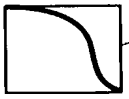
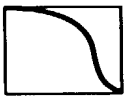
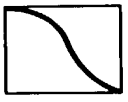
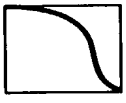
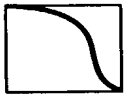
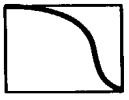
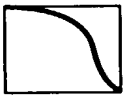
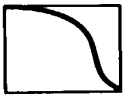
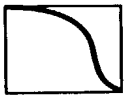
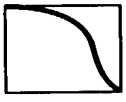
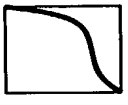
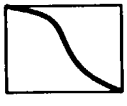
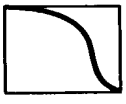
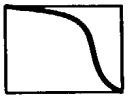
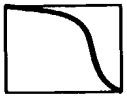
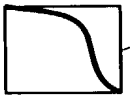
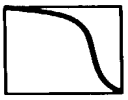
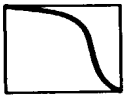
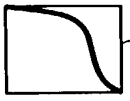
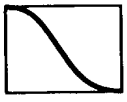
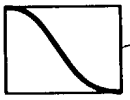
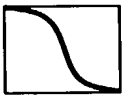
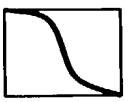
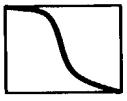

100%
50%
0%
22
DEAD
23
25
21
24
NORMAL
Lx
PEOPLE BEING SICK OR DISABLED
0 YEARS OLD
30 YEARS OLD
60 YEARS OLD
90 YEARS OLD
AGE
HEALTHY LIFE EXPECTANCY (AGE i)= $\sum_{x=i}^{\infty}$ Lx/Li
26

FIG. 3

DAILY LIVING HABIT			DECISION RESULT				
SMOKE	DRINK	EXERCISE	OBESITY+	HYPER-TENSION+	HYPER-LIPEMIA+	HYPER-GLYCEMIA+	HYPER-URICEMIA+
NO	NO	NO					
NO	NO	A LITTLE					
NO	NO	MUCH					
NO	YES	NO					
NO	YES	A LITTLE					
NO	YES	MUCH					
YES	NO	NO					
YES	NO	A LITTLE					
YES	NO	MUCH					
YES	YES	NO					

27
28
29
30

FIG. 4

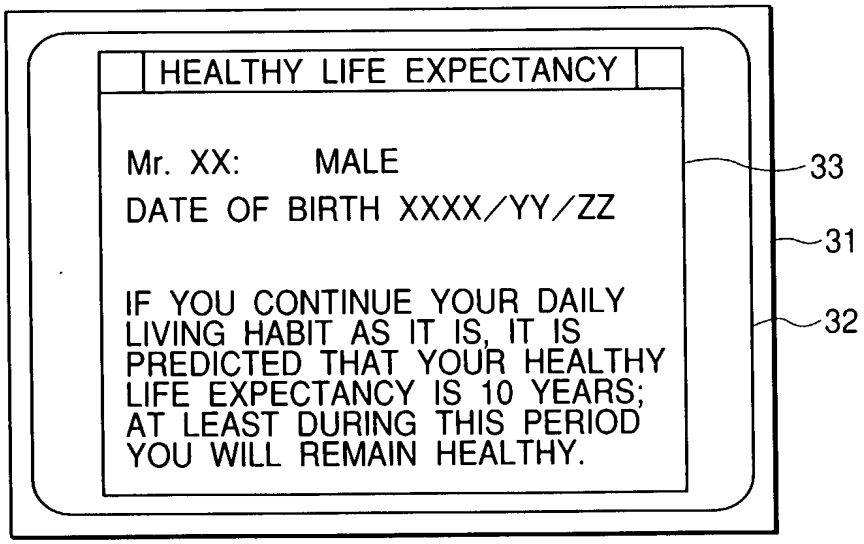

HEALTHY LIFE EXPECTANCY
Mr. XX: MALE
DATE OF BIRTH XXXX/YY/ZZ
IF YOU CONTINUE YOUR DAILY LIVING HABIT AS IT IS, IT IS PREDICTED THAT YOUR HEALTHY LIFE EXPECTANCY IS 10 YEARS; AT LEAST DURING THIS PERIOD YOU WILL REMAIN HEALTHY.
33
31
32

FIG. 5

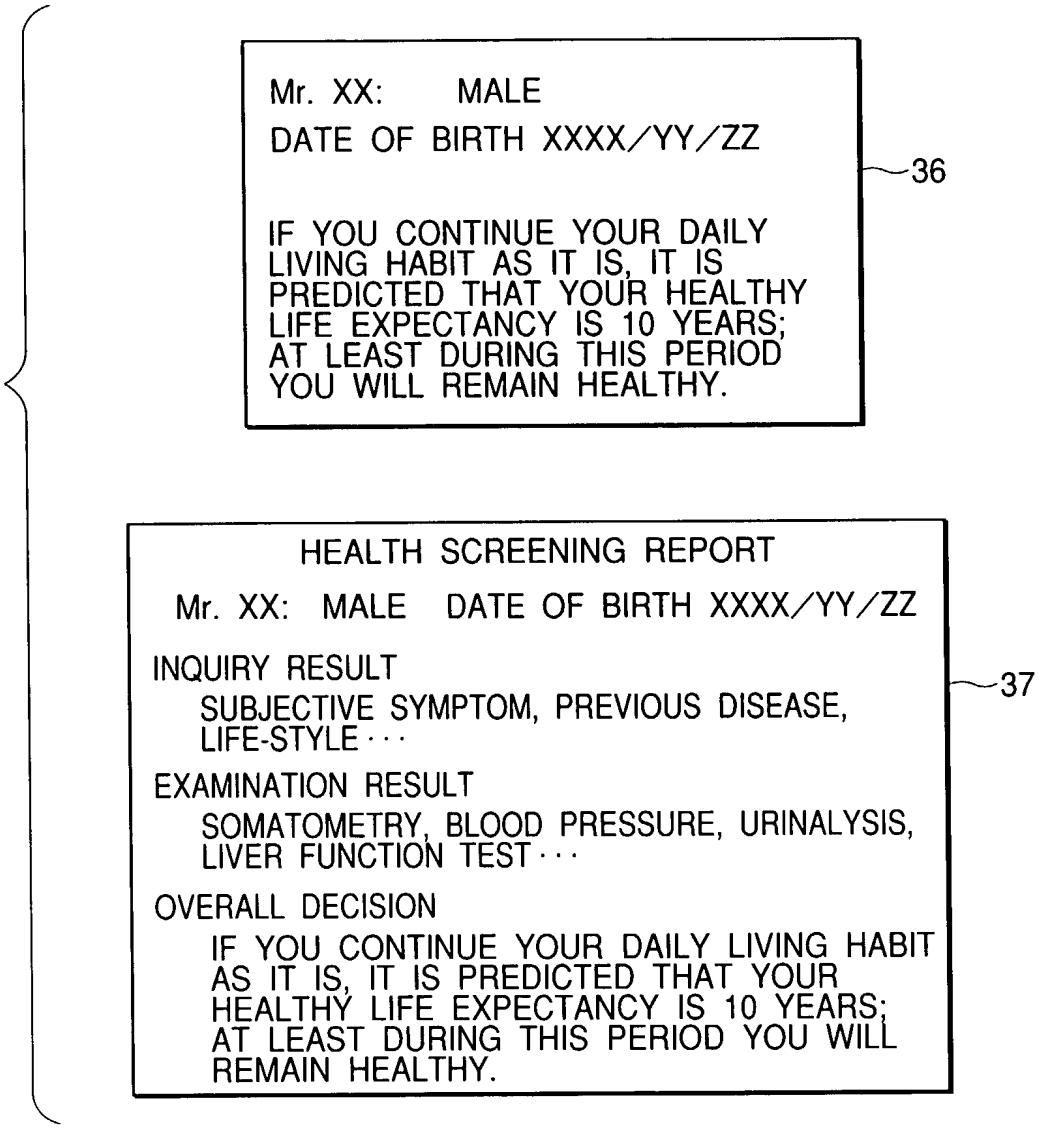

Mr. XX: MALE
DATE OF BIRTH XXXX/YY/ZZ
IF YOU CONTINUE YOUR DAILY LIVING HABIT AS IT IS, IT IS PREDICTED THAT YOUR HEALTHY LIFE EXPECTANCY IS 10 YEARS; AT LEAST DURING THIS PERIOD YOU WILL REMAIN HEALTHY.
36
HEALTH SCREENING REPORT
Mr. XX: MALE DATE OF BIRTH XXXX/YY/ZZ
INQUIRY RESULT
SUBJECTIVE SYMPTOM, PREVIOUS DISEASE, LIFE-STYLE · · ·
EXAMINATION RESULT
SOMATOMETRY, BLOOD PRESSURE, URINALYSIS, LIVER FUNCTION TEST · · ·
OVERALL DECISION
IF YOU CONTINUE YOUR DAILY LIVING HABIT AS IT IS, IT IS PREDICTED THAT YOUR HEALTHY LIFE EXPECTANCY IS 10 YEARS; AT LEAST DURING THIS PERIOD YOU WILL REMAIN HEALTHY.
37

FIG. 6

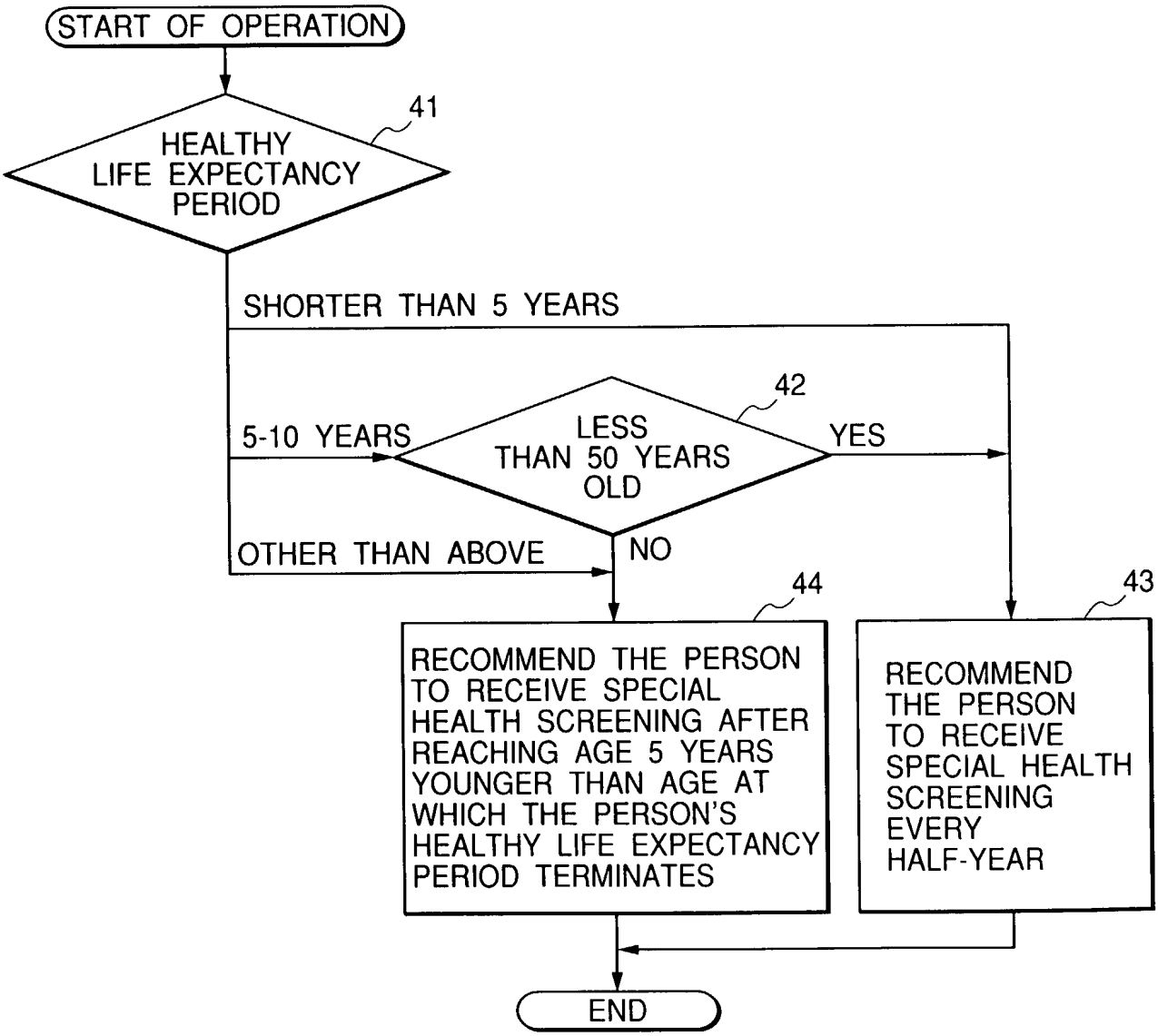

START OF OPERATION
41
HEALTHY LIFE EXPECTANCY PERIOD
SHORTER THAN 5 YEARS
5-10 YEARS
42
LESS THAN 50 YEARS OLD
YES
NO
OTHER THAN ABOVE
44
RECOMMEND THE PERSON TO RECEIVE SPECIAL HEALTH SCREENING AFTER REACHING AGE 5 YEARS YOUNGER THAN AGE AT WHICH THE PERSON'S HEALTHY LIFE EXPECTANCY PERIOD TERMINATES
43
RECOMMEND THE PERSON TO RECEIVE SPECIAL HEALTH SCREENING EVERY HALF-YEAR
END

FIG. 7

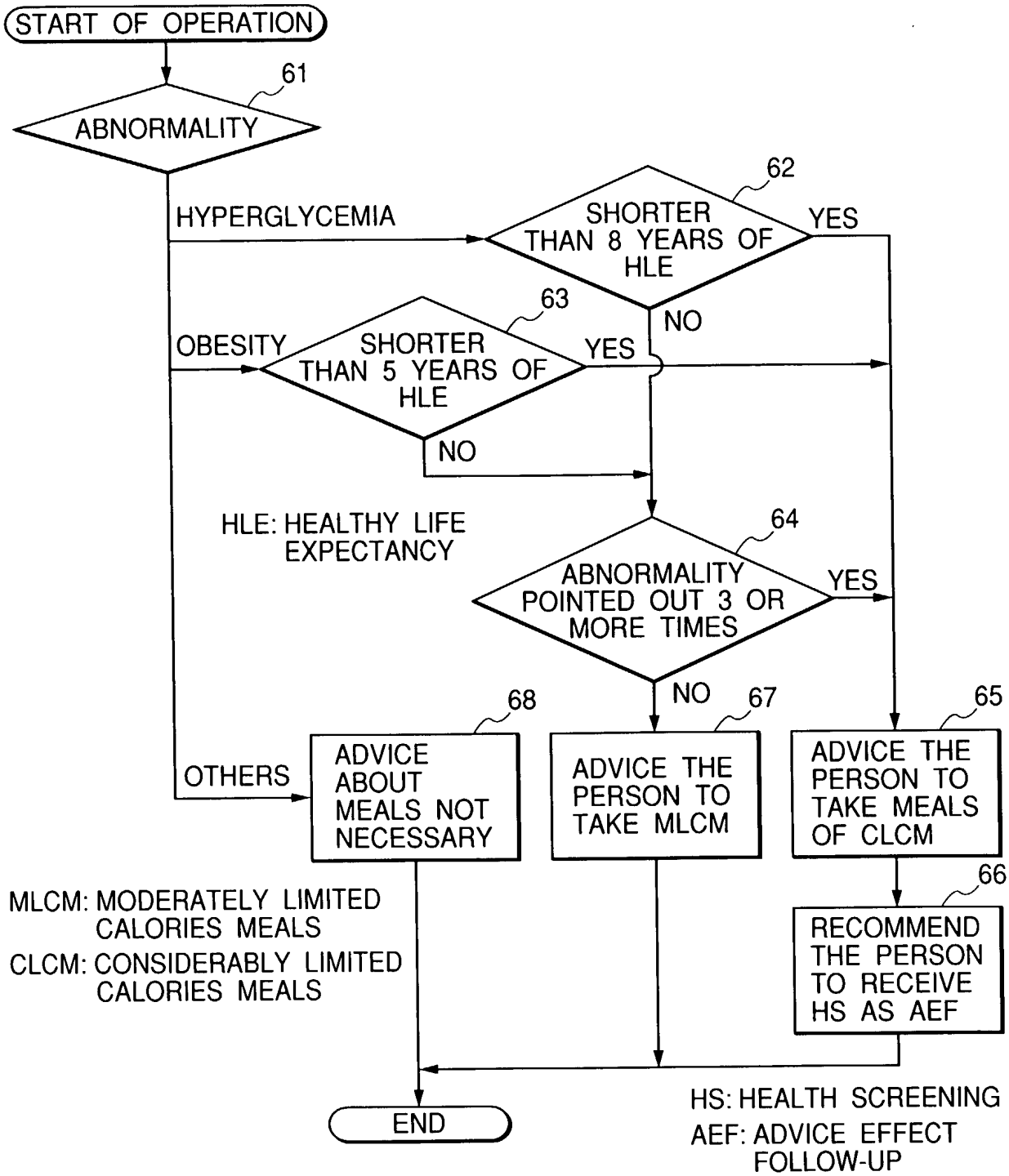

START OF OPERATION
61
ABNORMALITY
HYPERGLYCEMIA
62
SHORTER THAN 8 YEARS OF HLE
YES
NO
OBESITY
63
SHORTER THAN 5 YEARS OF HLE
YES
NO
HLE: HEALTHY LIFE EXPECTANCY
64
ABNORMALITY POINTED OUT 3 OR MORE TIMES
YES
NO
OTHERS
68
ADVICE ABOUT MEALS NOT NECESSARY
67
ADVICE THE PERSON TO TAKE MLCM
65
ADVICE THE PERSON TO TAKE MEALS OF CLCM
66
RECOMMEND THE PERSON TO RECEIVE HS AS AEF
MLCM: MODERATELY LIMITED CALORIES MEALS
CLCM: CONSIDERABLY LIMITED CALORIES MEALS
END
HS: HEALTH SCREENING
AEF: ADVICE EFFECT FOLLOW-UP

FIG. 8

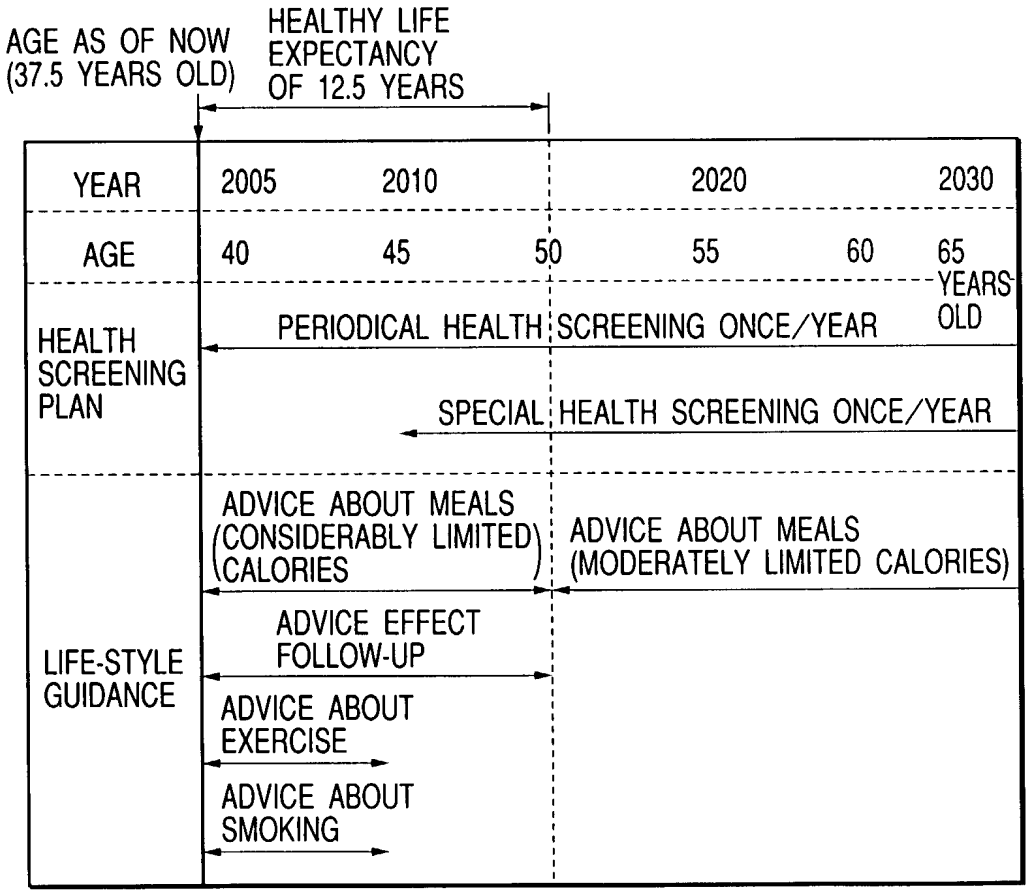

AGE AS OF NOW (37.5 YEARS OLD)
HEALTHY LIFE EXPECTANCY OF 12.5 YEARS
YEAR
2005
2010
2020
2030
AGE
40
45
50
55
60
65 YEARS OLD
HEALTH SCREENING PLAN
PERIODICAL HEALTH SCREENING ONCE/YEAR
SPECIAL HEALTH SCREENING ONCE/YEAR
LIFE-STYLE GUIDANCE
ADVICE ABOUT MEALS (CONSIDERABLY LIMITED CALORIES)
ADVICE ABOUT MEALS (MODERATELY LIMITED CALORIES)
ADVICE EFFECT FOLLOW-UP
ADVICE ABOUT EXERCISE
ADVICE ABOUT SMOKING

FIG. 9

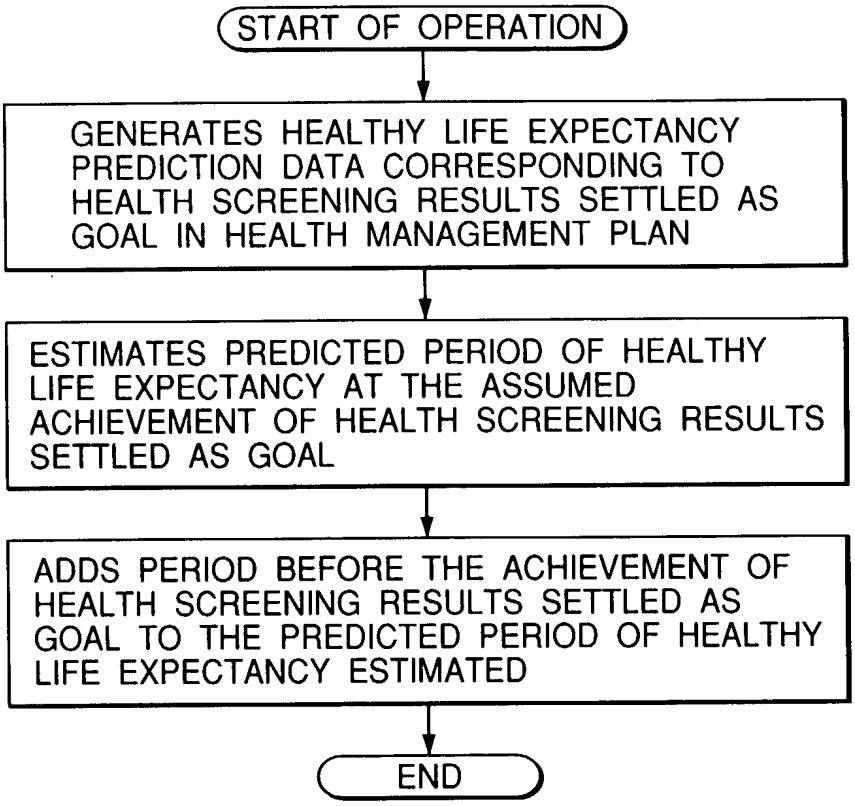

START OF OPERATION
GENERATES HEALTHY LIFE EXPECTANCY PREDICTION DATA CORRESPONDING TO HEALTH SCREENING RESULTS SETTLED AS GOAL IN HEALTH MANAGEMENT PLAN
ESTIMATES PREDICTED PERIOD OF HEALTHY LIFE EXPECTANCY AT THE ASSUMED ACHIEVEMENT OF HEALTH SCREENING RESULTS SETTLED AS GOAL
ADDS PERIOD BEFORE THE ACHIEVEMENT OF HEALTH SCREENING RESULTS SETTLED AS GOAL TO THE PREDICTED PERIOD OF HEALTHY LIFE EXPECTANCY ESTIMATED
END

FIG. 10

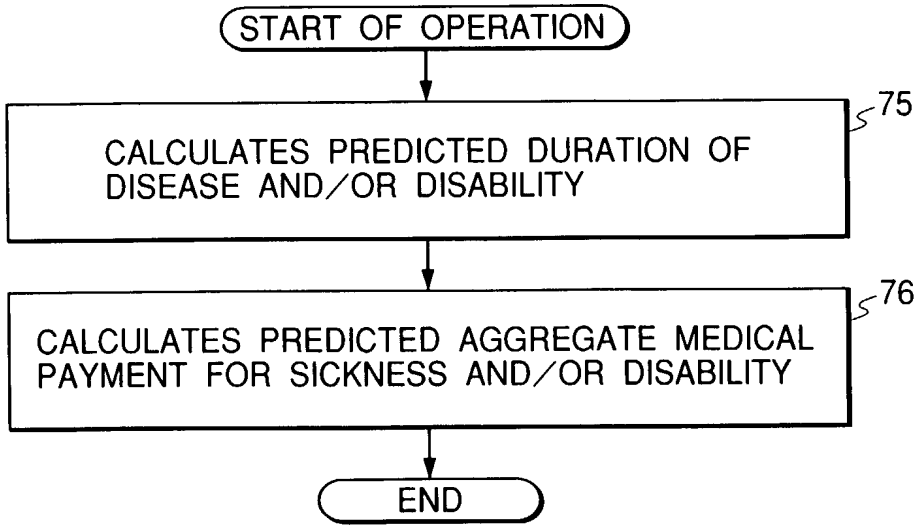

START OF OPERATION
CALCULATES PREDICTED DURATION OF DISEASE AND/OR DISABILITY
75
CALCULATES PREDICTED AGGREGATE MEDICAL PAYMENT FOR SICKNESS AND/OR DISABILITY
76
END

FIG. 11

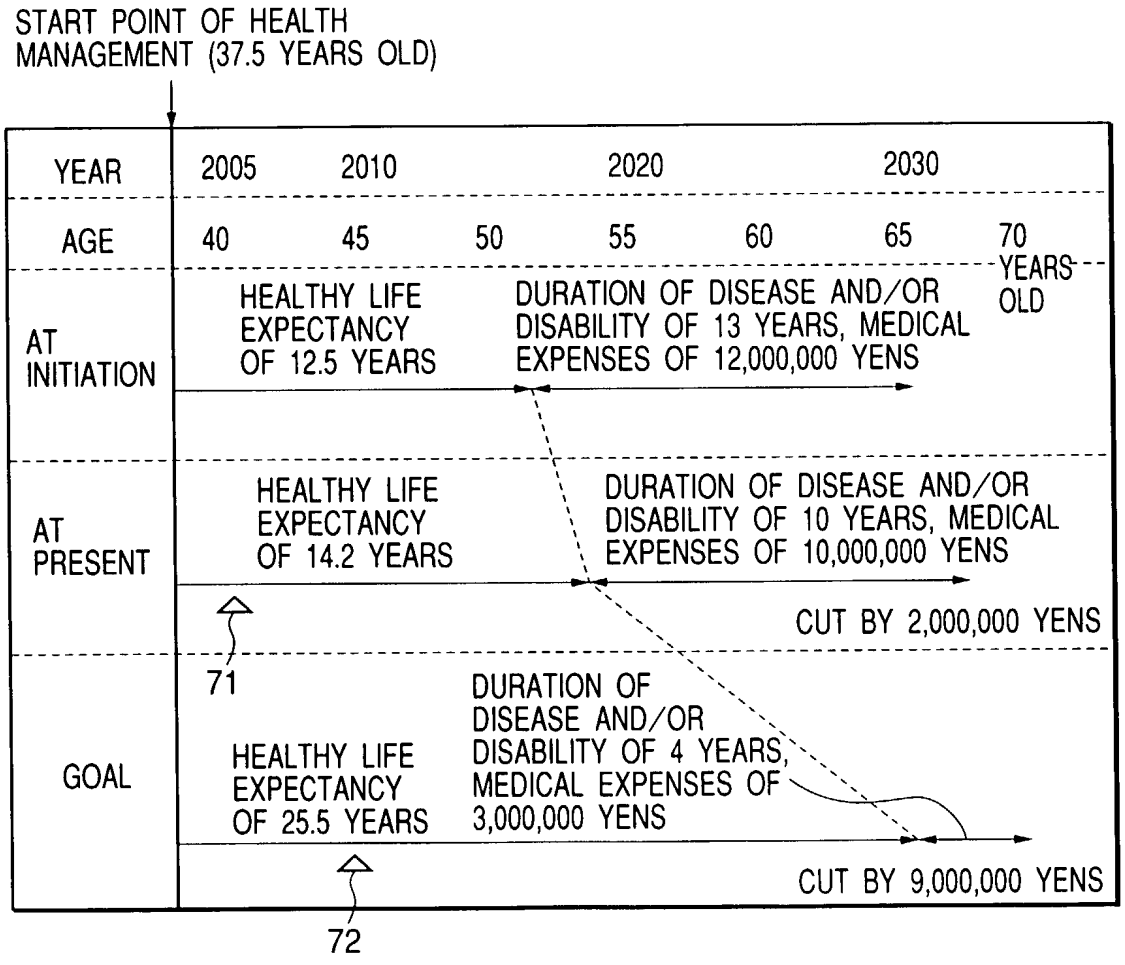

START POINT OF HEALTH MANAGEMENT (37.5 YEARS OLD)
YEAR
2005
2010
2020
2030
AGE
40
45
50
55
60
65
70
YEARS OLD
AT INITIATION
HEALTHY LIFE EXPECTANCY OF 12.5 YEARS
DURATION OF DISEASE AND/OR DISABILITY OF 13 YEARS, MEDICAL EXPENSES OF 12,000,000 YENS
AT PRESENT
HEALTHY LIFE EXPECTANCY OF 14.2 YEARS
DURATION OF DISEASE AND/OR DISABILITY OF 10 YEARS, MEDICAL EXPENSES OF 10,000,000 YENS
CUT BY 2,000,000 YENS
71
GOAL
HEALTHY LIFE EXPECTANCY OF 25.5 YEARS
DURATION OF DISEASE AND/OR DISABILITY OF 4 YEARS, MEDICAL EXPENSES OF 3,000,000 YENS
CUT BY 9,000,000 YENS
72

FIG. 12

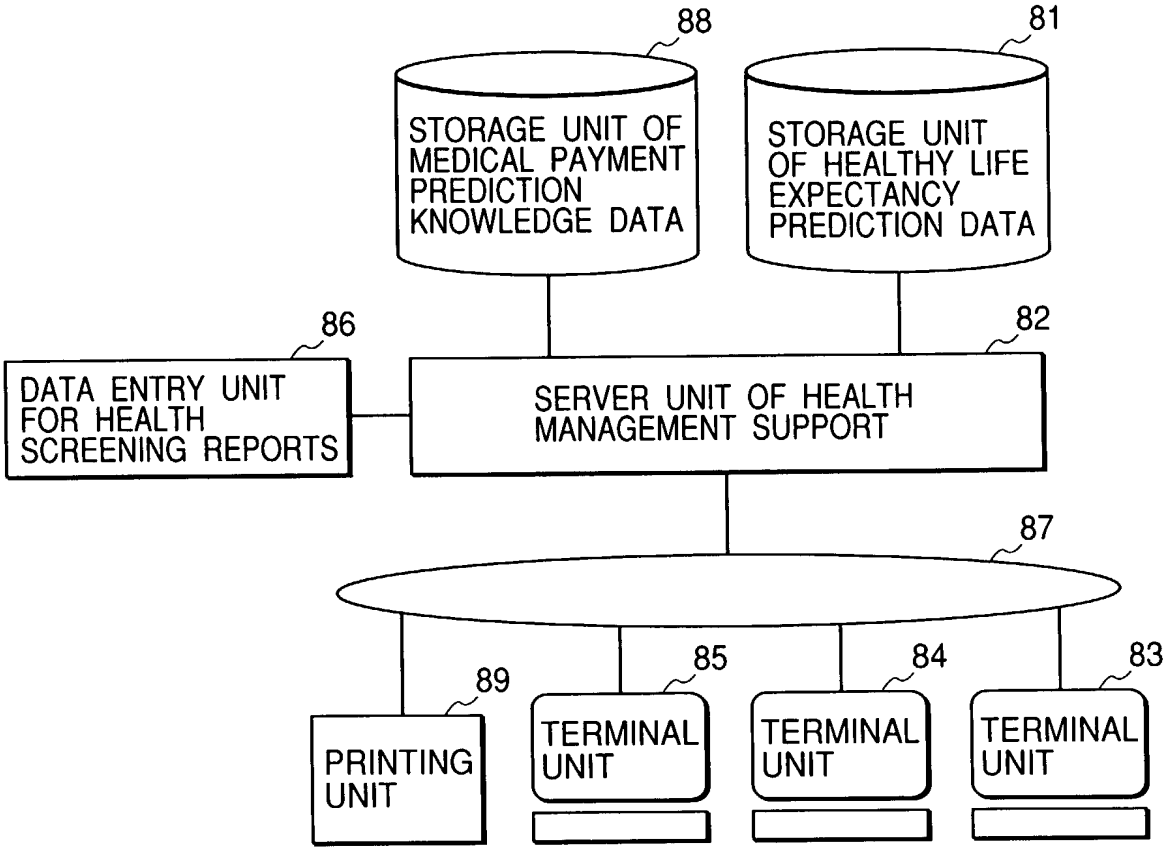

88
81
STORAGE UNIT OF MEDICAL PAYMENT PREDICTION KNOWLEDGE DATA
STORAGE UNIT OF HEALTHY LIFE EXPECTANCY PREDICTION DATA
86
82
DATA ENTRY UNIT FOR HEALTH SCREENING REPORTS
SERVER UNIT OF HEALTH MANAGEMENT SUPPORT
87
89
85
84
83
PRINTING UNIT
TERMINAL UNIT
TERMINAL UNIT
TERMINAL UNIT

FIG. 13

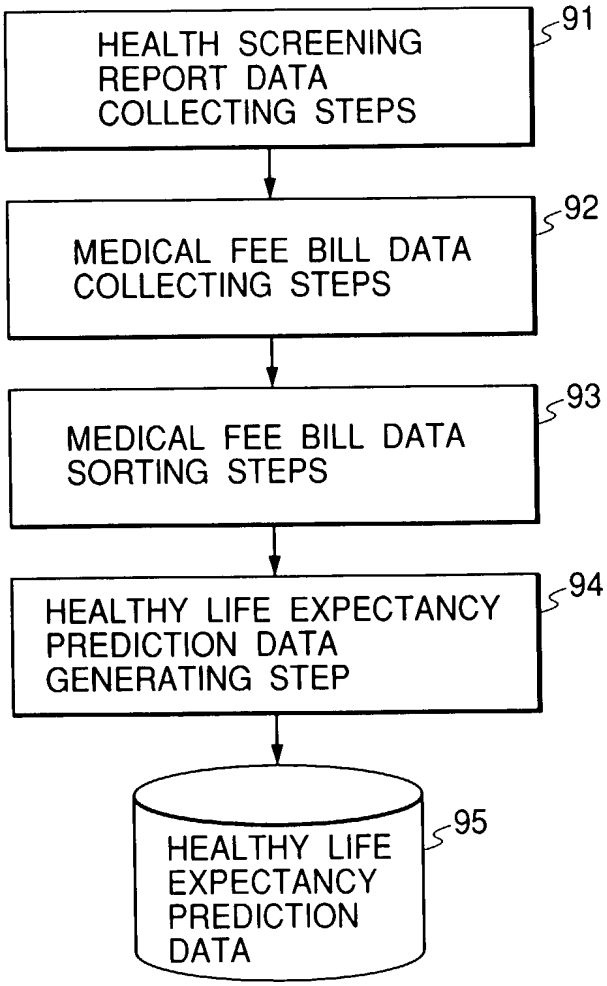

HEALTH SCREENING REPORT DATA COLLECTING STEPS
91
MEDICAL FEE BILL DATA COLLECTING STEPS
92
MEDICAL FEE BILL DATA SORTING STEPS
93
HEALTHY LIFE EXPECTANCY PREDICTION DATA GENERATING STEP
94
HEALTHY LIFE EXPECTANCY PREDICTION DATA
95

FIG. 14

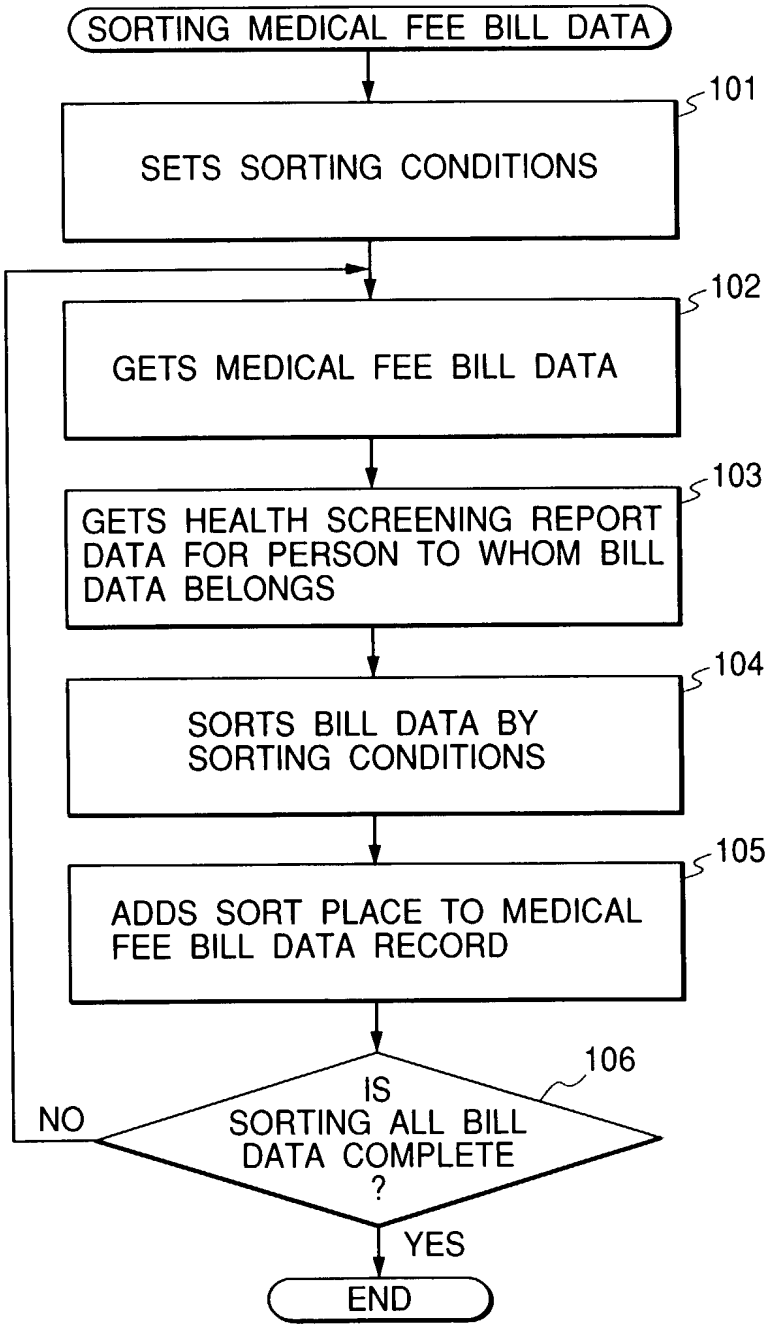

SORTING MEDICAL FEE BILL DATA
101
SETS SORTING CONDITIONS
102
GETS MEDICAL FEE BILL DATA
103
GETS HEALTH SCREENING REPORT DATA FOR PERSON TO WHOM BILL DATA BELONGS
104
SORTS BILL DATA BY SORTING CONDITIONS
105
ADDS SORT PLACE TO MEDICAL FEE BILL DATA RECORD
106
IS SORTING ALL BILL DATA COMPLETE ?
NO
YES
END

FIG. 15

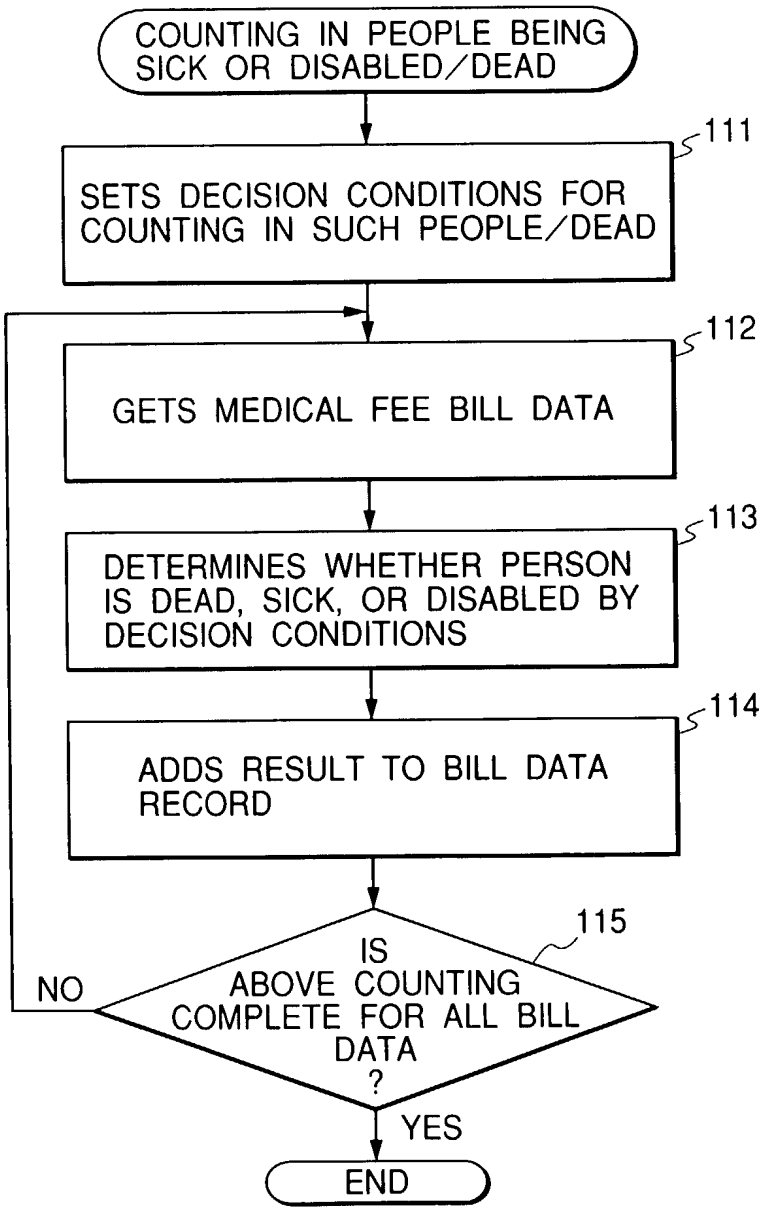

COUNTING IN PEOPLE BEING SICK OR DISABLED/DEAD
111
SETS DECISION CONDITIONS FOR COUNTING IN SUCH PEOPLE/DEAD
112
GETS MEDICAL FEE BILL DATA
113
DETERMINES WHETHER PERSON IS DEAD, SICK, OR DISABLED BY DECISION CONDITIONS
114
ADDS RESULT TO BILL DATA RECORD
115
IS ABOVE COUNTING COMPLETE FOR ALL BILL DATA ?
NO
YES
END

FIG. 16

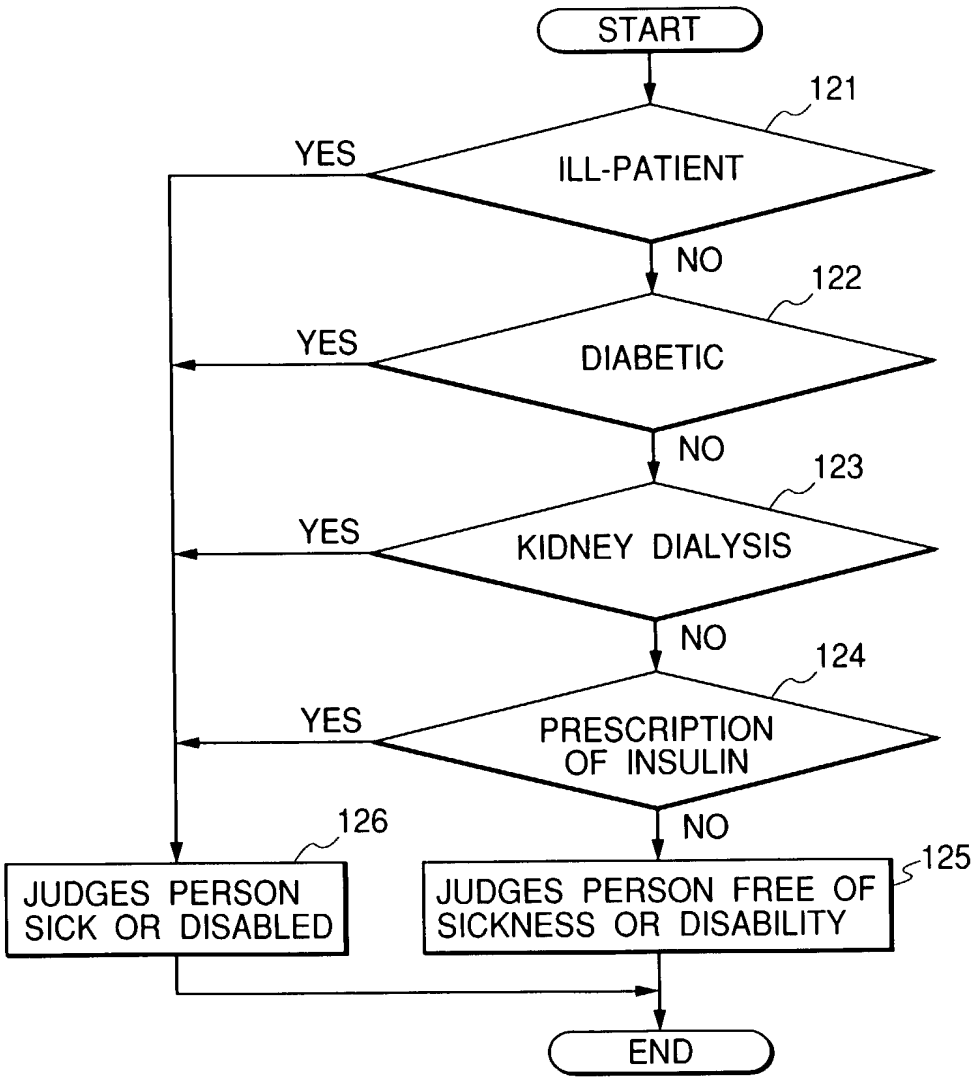

START
121
ILL-PATIENT
YES
NO
122
DIABETIC
YES
NO
123
KIDNEY DIALYSIS
YES
NO
124
PRESCRIPTION OF INSULIN
YES
NO
126
JUDGES PERSON SICK OR DISABLED
125
JUDGES PERSON FREE OF SICKNESS OR DISABILITY
END

FIG. 17

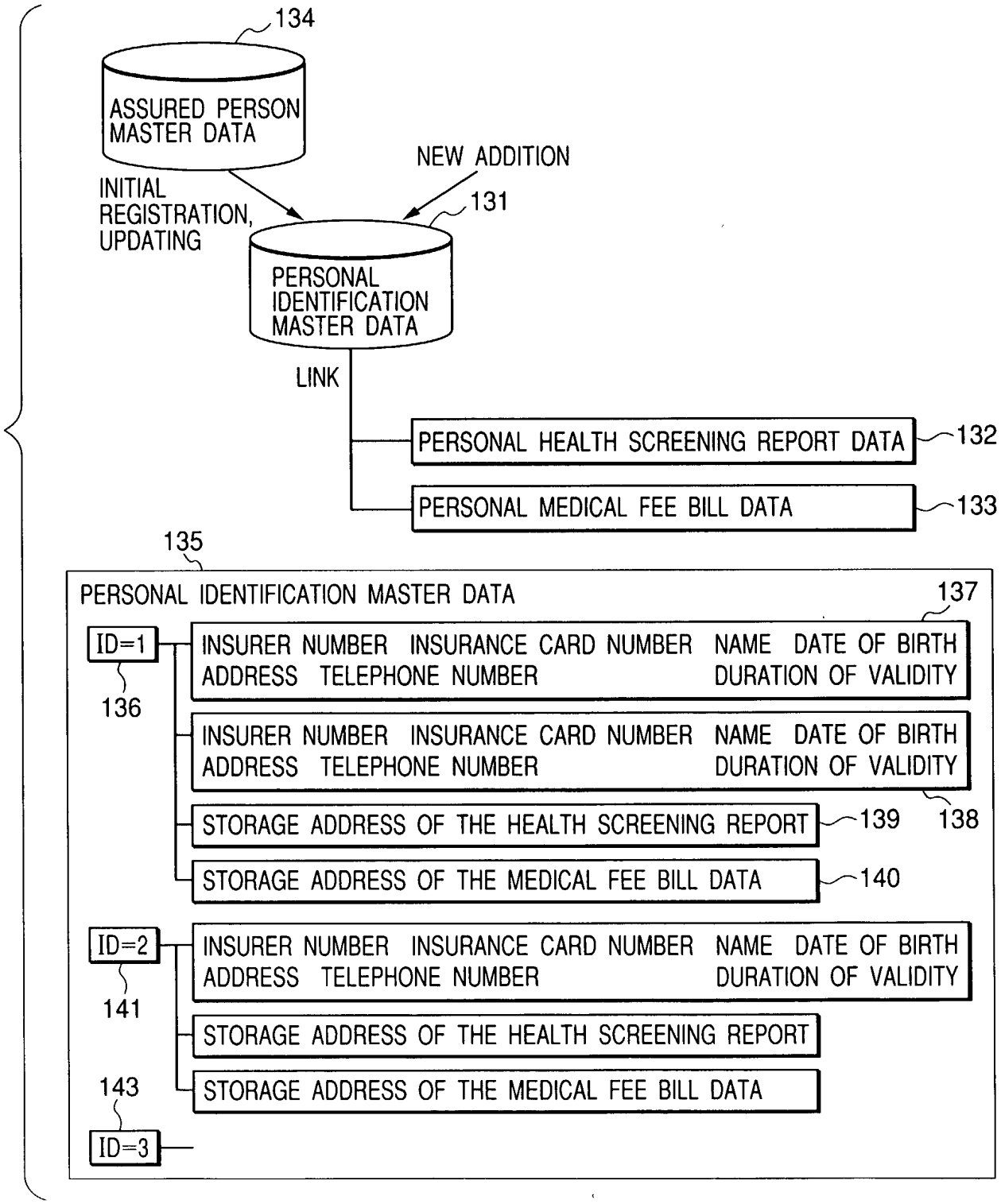

134
ASSURED PERSON MASTER DATA
NEW ADDITION
INITIAL REGISTRATION, UPDATING
131
PERSONAL IDENTIFICATION MASTER DATA
LINK
PERSONAL HEALTH SCREENING REPORT DATA
132
PERSONAL MEDICAL FEE BILL DATA
133
135
PERSONAL IDENTIFICATION MASTER DATA
137
ID=1
136
INSURER NUMBER INSURANCE CARD NUMBER NAME DATE OF BIRTH ADDRESS TELEPHONE NUMBER DURATION OF VALIDITY
INSURER NUMBER INSURANCE CARD NUMBER NAME DATE OF BIRTH ADDRESS TELEPHONE NUMBER DURATION OF VALIDITY
138
STORAGE ADDRESS OF THE HEALTH SCREENING REPORT
139
STORAGE ADDRESS OF THE MEDICAL FEE BILL DATA
140
ID=2
141
INSURER NUMBER INSURANCE CARD NUMBER NAME DATE OF BIRTH ADDRESS TELEPHONE NUMBER DURATION OF VALIDITY
STORAGE ADDRESS OF THE HEALTH SCREENING REPORT
143
STORAGE ADDRESS OF THE MEDICAL FEE BILL DATA
ID=3

FIG. 18

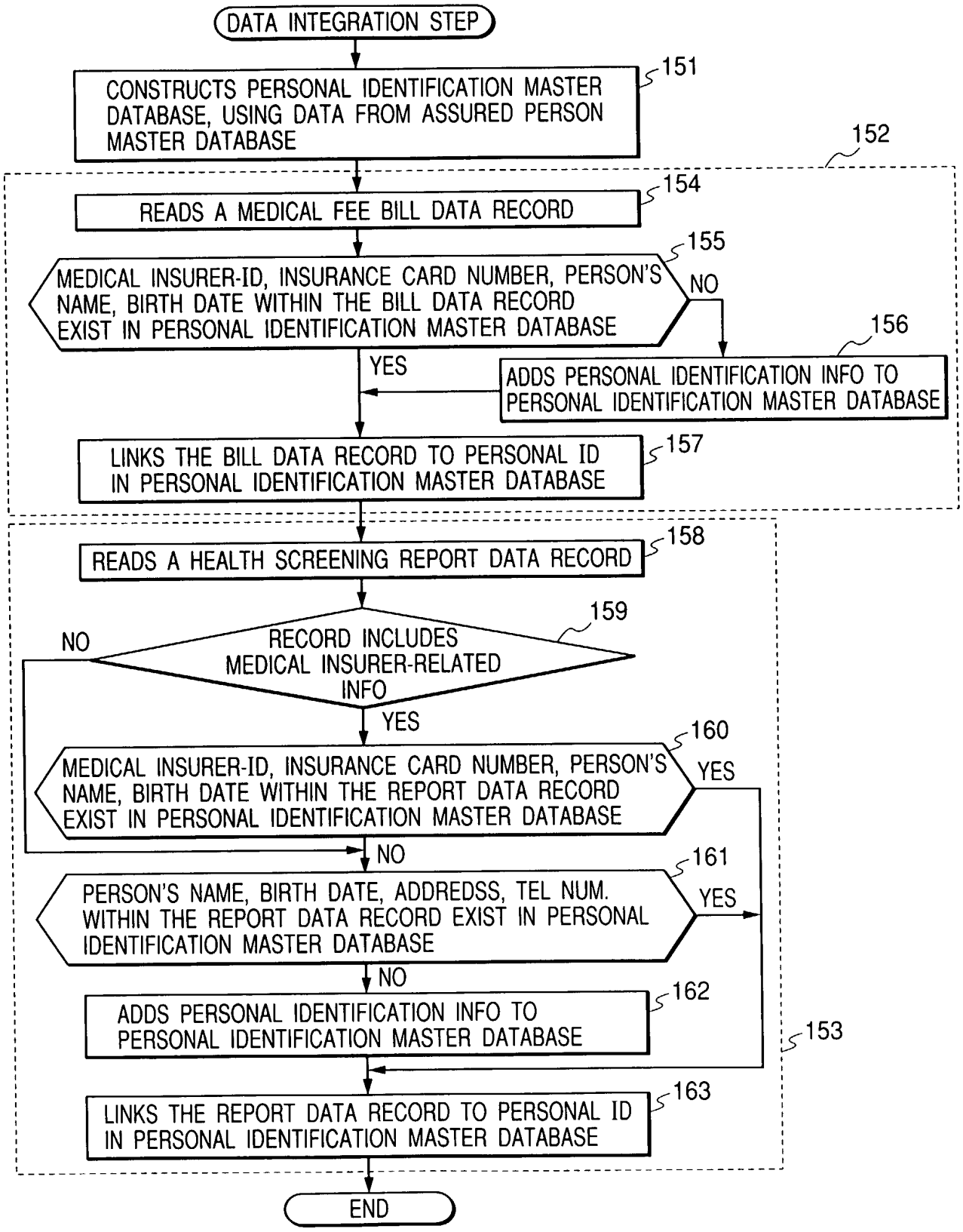

DATA INTEGRATION STEP
CONSTRUCTS PERSONAL IDENTIFICATION MASTER DATABASE, USING DATA FROM ASSURED PERSON MASTER DATABASE
151
152
READS A MEDICAL FEE BILL DATA RECORD
154
MEDICAL INSURER-ID, INSURANCE CARD NUMBER, PERSON'S NAME, BIRTH DATE WITHIN THE BILL DATA RECORD EXIST IN PERSONAL IDENTIFICATION MASTER DATABASE
155
NO
YES
ADDS PERSONAL IDENTIFICATION INFO TO PERSONAL IDENTIFICATION MASTER DATABASE
156
LINKS THE BILL DATA RECORD TO PERSONAL ID IN PERSONAL IDENTIFICATION MASTER DATABASE
157
READS A HEALTH SCREENING REPORT DATA RECORD
158
RECORD INCLUDES MEDICAL INSURER-RELATED INFO
159
NO
YES
MEDICAL INSURER-ID, INSURANCE CARD NUMBER, PERSON'S NAME, BIRTH DATE WITHIN THE REPORT DATA RECORD EXIST IN PERSONAL IDENTIFICATION MASTER DATABASE
160
YES
NO
PERSON'S NAME, BIRTH DATE, ADDREDSS, TEL NUM. WITHIN THE REPORT DATA RECORD EXIST IN PERSONAL IDENTIFICATION MASTER DATABASE
161
YES
NO
ADDS PERSONAL IDENTIFICATION INFO TO PERSONAL IDENTIFICATION MASTER DATABASE
162
153
LINKS THE REPORT DATA RECORD TO PERSONAL ID IN PERSONAL IDENTIFICATION MASTER DATABASE
163
END

FIG. 19

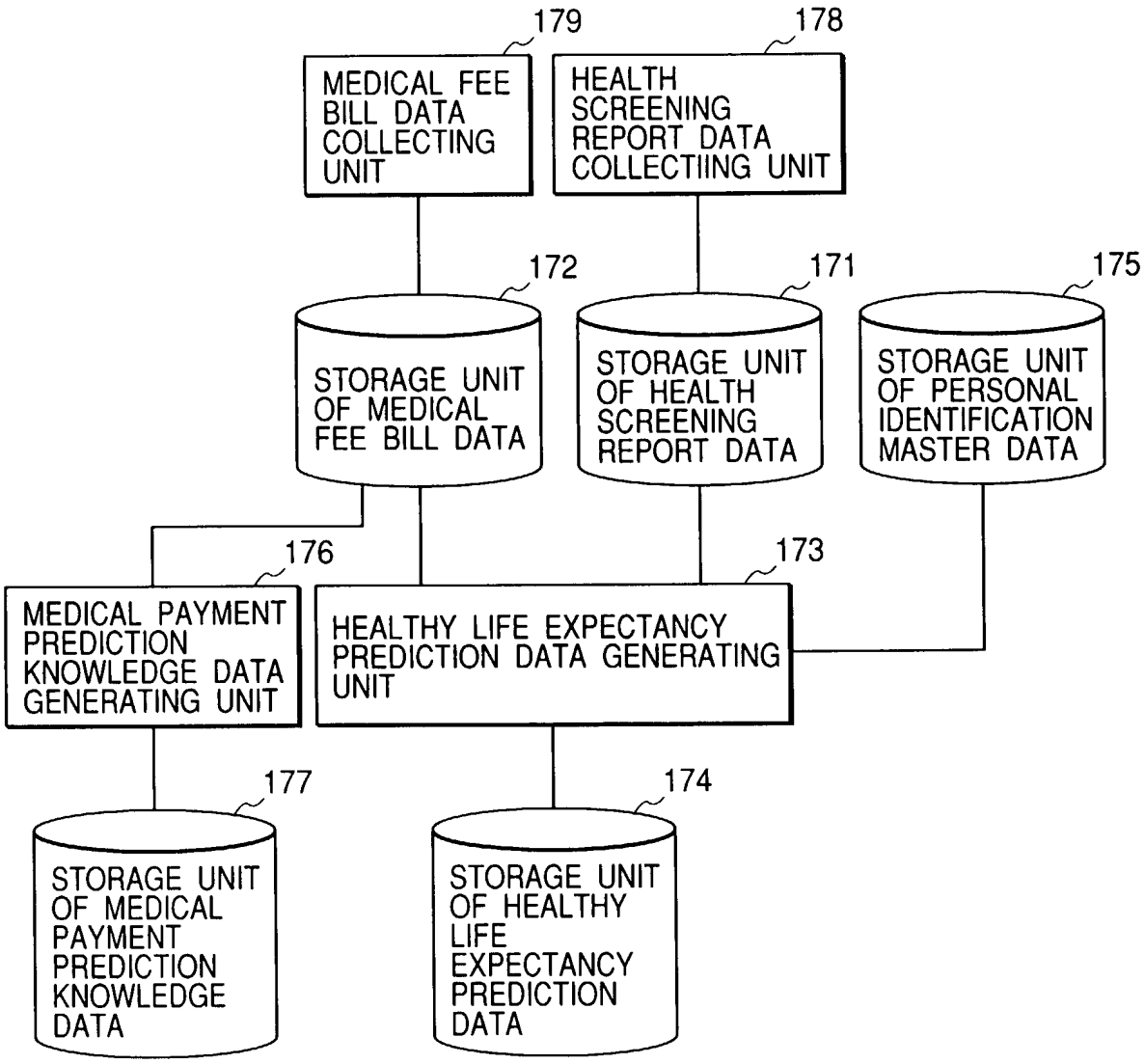

179
MEDICAL FEE BILL DATA COLLECTING UNIT
178
HEALTH SCREENING REPORT DATA COLLECTIING UNIT
172
STORAGE UNIT OF MEDICAL FEE BILL DATA
171
STORAGE UNIT OF HEALTH SCREENING REPORT DATA
175
STORAGE UNIT OF PERSONAL IDENTIFICATION MASTER DATA
176
MEDICAL PAYMENT PREDICTION KNOWLEDGE DATA GENERATING UNIT
173
HEALTHY LIFE EXPECTANCY PREDICTION DATA GENERATING UNIT
177
STORAGE UNIT OF MEDICAL PAYMENT PREDICTION KNOWLEDGE DATA
174
STORAGE UNIT OF HEALTHY LIFE EXPECTANCY PREDICTION DATA

FIG. 20

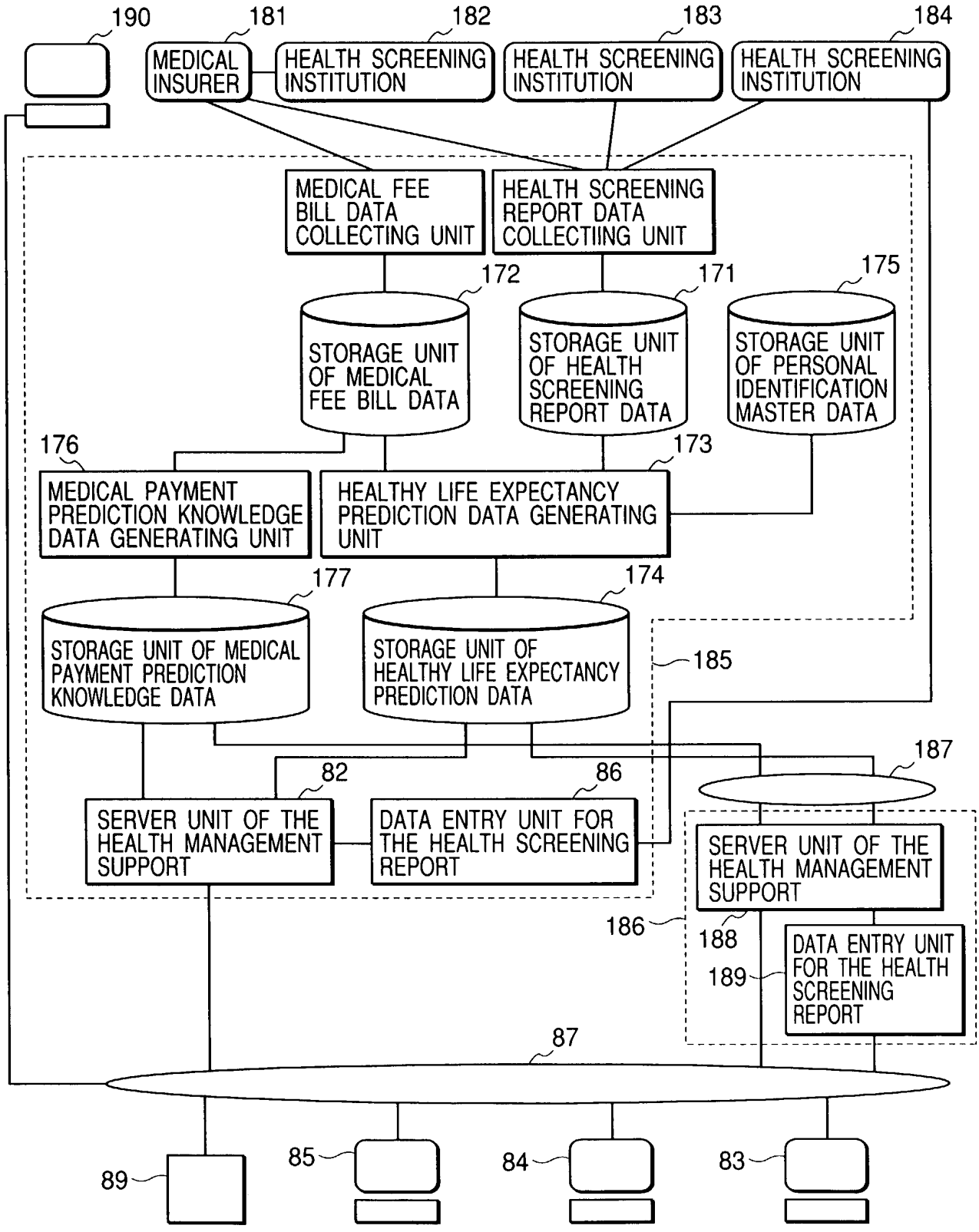

190
181
182
183
184
MEDICAL INSURER
HEALTH SCREENING INSTITUTION
HEALTH SCREENING INSTITUTION
HEALTH SCREENING INSTITUTION
MEDICAL FEE BILL DATA COLLECTING UNIT
HEALTH SCREENING REPORT DATA COLLECTIING UNIT
172
171
175
STORAGE UNIT OF MEDICAL FEE BILL DATA
STORAGE UNIT OF HEALTH SCREENING REPORT DATA
STORAGE UNIT OF PERSONAL IDENTIFICATION MASTER DATA
176
173
MEDICAL PAYMENT PREDICTION KNOWLEDGE DATA GENERATING UNIT
HEALTHY LIFE EXPECTANCY PREDICTION DATA GENERATING UNIT
177
174
STORAGE UNIT OF MEDICAL PAYMENT PREDICTION KNOWLEDGE DATA
STORAGE UNIT OF HEALTHY LIFE EXPECTANCY PREDICTION DATA
185
187
82
86
SERVER UNIT OF THE HEALTH MANAGEMENT SUPPORT
DATA ENTRY UNIT FOR THE HEALTH SCREENING REPORT
SERVER UNIT OF THE HEALTH MANAGEMENT SUPPORT
186
188
189
DATA ENTRY UNIT FOR THE HEALTH SCREENING REPORT
87
89
85
84
83

FIG. 21

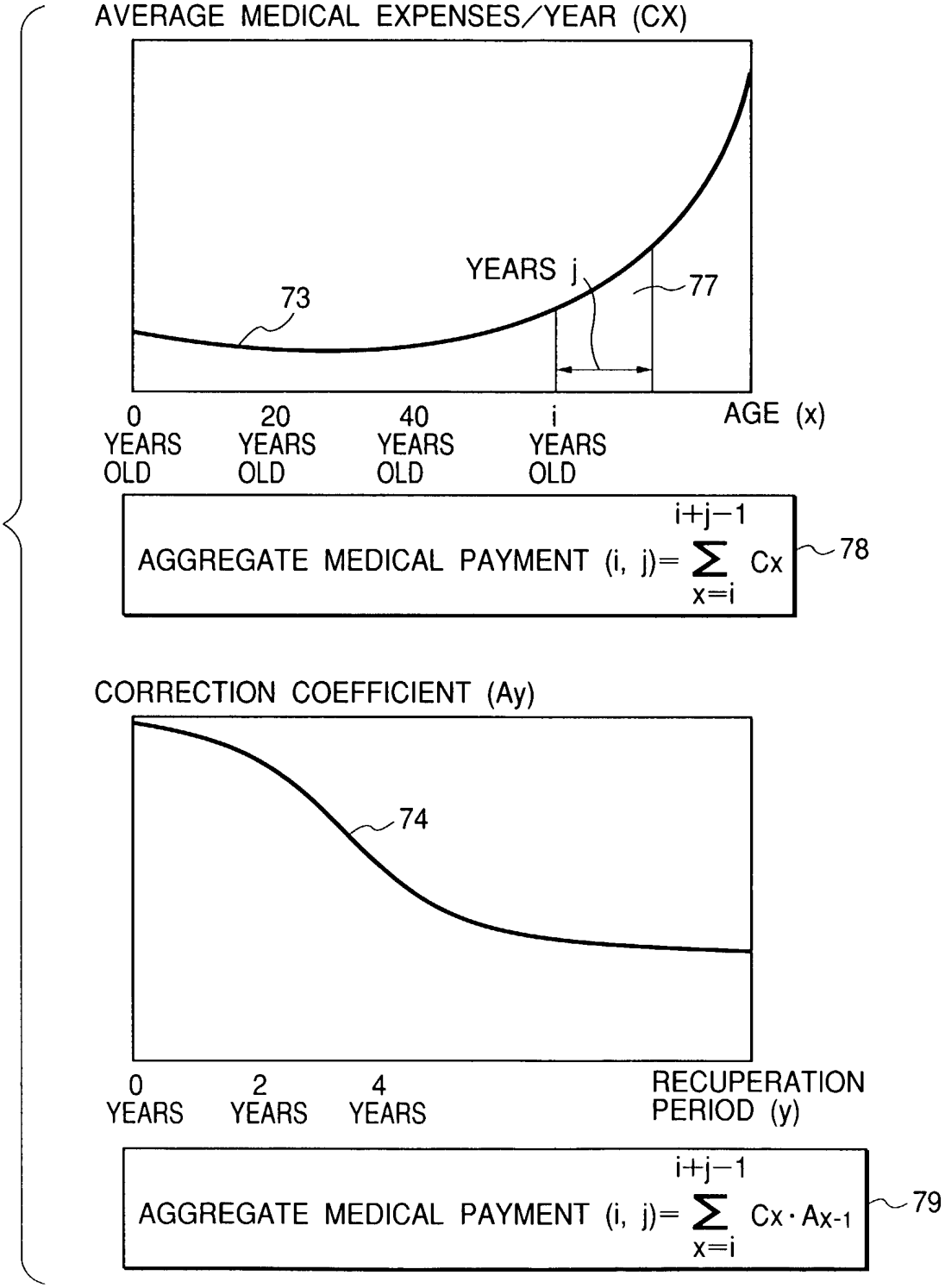

AVERAGE MEDICAL EXPENSES/YEAR (CX)
73
YEARS j
77
0 YEARS OLD
20 YEARS OLD
40 YEARS OLD
i YEARS OLD
AGE (x)
AGGREGATE MEDICAL PAYMENT (i, j)= Σ (x=i to i+j−1) Cx
78
CORRECTION COEFFICIENT (Ay)
74
0 YEARS
2 YEARS
4 YEARS
RECUPERATION PERIOD (y)
AGGREGATE MEDICAL PAYMENT (i, j)= Σ (x=i to i+j−1) Cx · Ax-1
79

FIG. 22

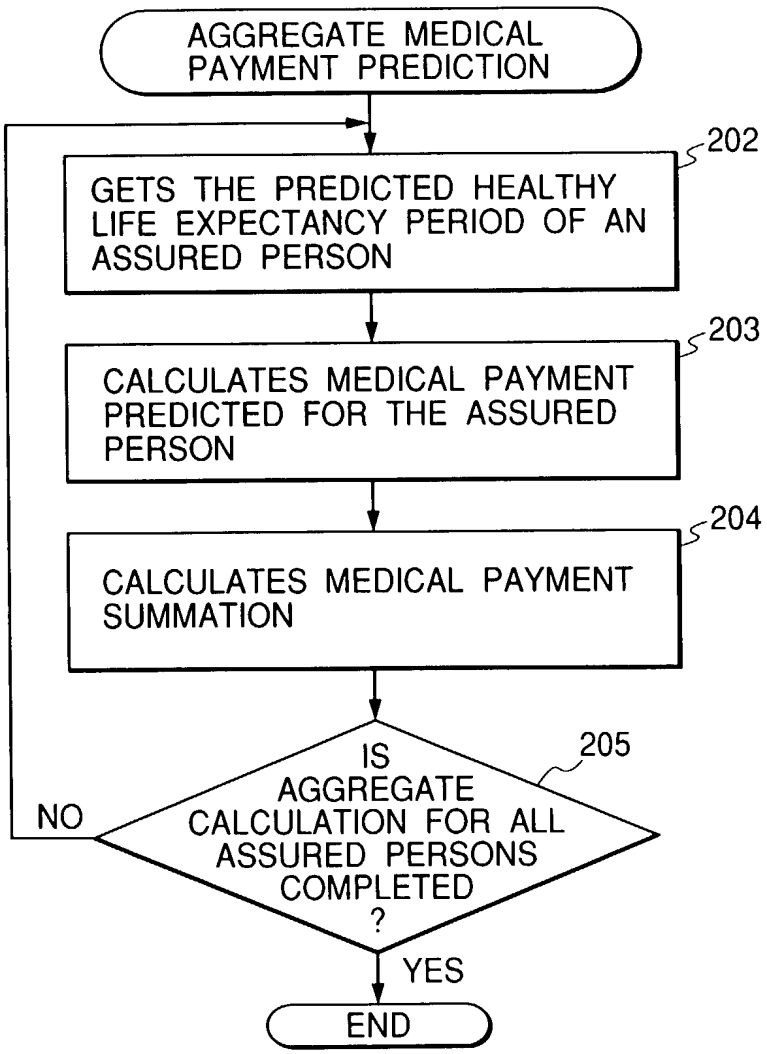
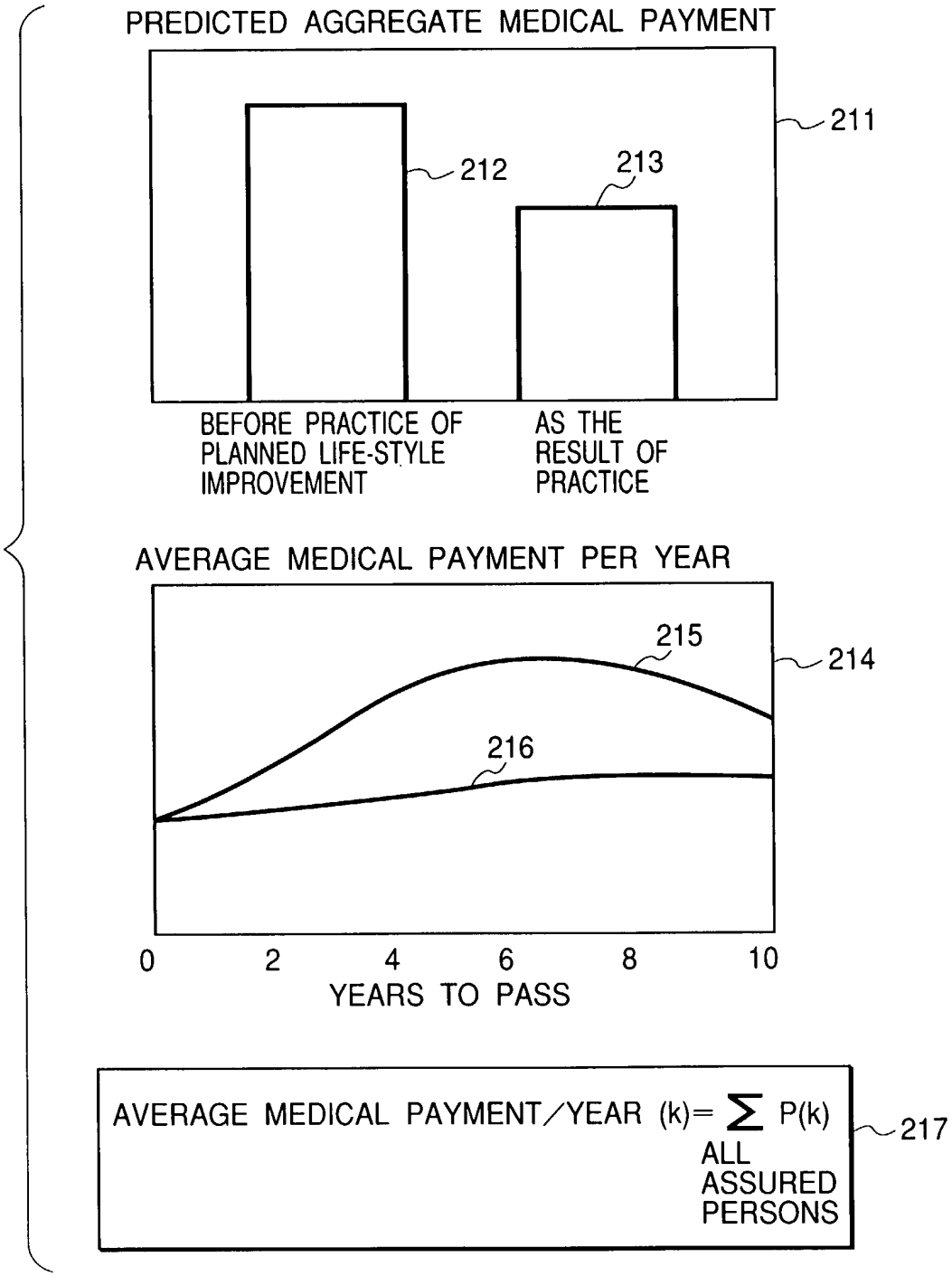

AGGREGATE MEDICAL PAYMENT PREDICTION
202
GETS THE PREDICTED HEALTHY LIFE EXPECTANCY PERIOD OF AN ASSURED PERSON
203
CALCULATES MEDICAL PAYMENT PREDICTED FOR THE ASSURED PERSON
204
CALCULATES MEDICAL PAYMENT SUMMATION
205
IS AGGREGATE CALCULATION FOR ALL ASSURED PERSONS COMPLETED ?
NO
YES
END

FIG. 23


PREDICTED AGGREGATE MEDICAL PAYMENT
211
212
213
BEFORE PRACTICE OF PLANNED LIFE-STYLE IMPROVEMENT
AS THE RESULT OF PRACTICE
AVERAGE MEDICAL PAYMENT PER YEAR
214
215
216
0
2
4
6
8
10
YEARS TO PASS
AVERAGE MEDICAL PAYMENT/YEAR (k)= Σ P(k) ALL ASSURED PERSONS
217